UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,147	01/08/2001	Cletus N. Welch	1582A1	4411

24959 7590 07/16/2003

PPG INDUSTRIES INC
INTELLECTUAL PROPERTY DEPT
ONE PPG PLACE
PITTSBURGH, PA 15272

EXAMINER
BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 07/16/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	09/755,147	WELCH ET AL.	
	Examin r	Art Unit	
	Melanie D. Bissett	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The rejections based on 35 USC 103 have been withdrawn based on the applicant's amendments. However, new rejections have been provided.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims have been amended to limit the polycarbonate polyol to comprise less than 10 mole percent of cycloaliphatic diol. Although the specification provides support for including cycloaliphatic polyols in the polycarbonate polyol component, the specification gives no guidance as to minimum or maximum amounts to be included. Thus, one of ordinary skill in the art reading the present specification would not know to limit a cycloaliphatic component to be less than 10 mol% of the polycarbonate polyol component.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-7 and 9-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over PPG Industries, Inc. in view of Ammons '529.

6. PPG discloses photochromic polyurethane coatings having a Fischer microhardness of 50-150 N/mm^2, ΔOD of 0.15 after 30 seconds, ΔOD of 0.28 after 8 minutes, and a bleach rate of less than 50 seconds (p. 5 line 3-p. 6 line 4). The coatings are prepared by reacting an isocyanate with a hard-segment-producing polyol and a soft-segment-producing polyol (p. 12 lines 13-20) with an optional catalyst (p. 11 line 25-p. 12 line 7) in the presence of a photochromic compound (p. 23 lines 13-30). Preferred isocyanates include isophorone diisocyanate blocked with methyl ethyl ketoxime (p. 10 lines 22-32), and preferred photochromic compounds include those of the applicant's claim 17 (p. 23 lines 13-30).

7. The reference teaches the use of soft-segment-producing polyols including polyester or polyether polyols with molecular weights of 500-10,000 g/mol (p. 15 lines 1-3; p. 15 line 31-p. 16 line 1), also teaching the use of hard-segment-producing polyols including polyacrylic polyols with molecular weights of 500-50,000 g/mol (P. 13 lines 10-17; p. 20 lines 19-27). PPG suggests the use of copolymers of (meth)acrylic monomers with the ethylenically unsaturated monomers of the applicant's claim 11 for hard-segment-producing polyols (p. 21 lines 7-25). However, PPG does not suggest the use of polycarbonate polyols having the claimed molecular weight for forming the polyurethanes.

8. Ammons teaches urethane compositions produced by reacting a diisocyanate with a low molecular weight active hydrogen-containing material and optionally a

polycarbonate diol (abstract). The materials have improved haze values, UV resistance, and clarity (col. 1 line 68-col. 2 line 4). Polycarbonate diols having a molecular weight of 700-2,000 are included in the formulation as desired to improve impact resistance of the resulting material (col. 3 lines 1-20). Ammons notes a conventional process for polycarbonate formation, where the aliphatic and cycloaliphatic diols are reacted with bischloroformate derivatives (col. 3 lines 46-49). Hexanediol and other linear aliphatic diols are noted (col. 3 lines 13-17).

9. One of ordinary skill in the art would recognize that the aliphatic character of the diols used to form the polycarbonate diols would yield a soft, flexible segment in the resulting polymer. Therefore, it is the examiner's position that it would have been prima facie obvious to use the polycarbonate diols of Ammons' teaching as soft-segment-producing diols in PPG's polyurethanes. It is also the examiner's position that, because of the similarity of the applicant's urethane compositions with those of the combined references, the coating resulting from PPG and Ammons would possess the applicant's claimed swell properties. Motivation for choosing the polycarbonate diols would have been to form polyurethane coatings having improved impact resistance.

10. Regarding the applicant's claimed primer and protective hardcoats, PPG notes the use of both primers and protective coatings, where the primer is applied between the substrate and urethane coating (p. 29 lines 1-3). The protective coatings applied to the urethane coatings include organosilane coatings (p. 29 lines 11-17). PPG also teaches the use of the applicant's claimed substrates (p. 27 lines 8-17), preferring

thermoplastic polycarbonate substrates for use in optical materials. Ophthalmic lenses having refractive indices of 1.48-1.75 are noted (p. 33 lines 9-18).

11. Additionally, it is noted that PPG specifically notes the preference for 1,4-diazabicyclo[2.2.2]octane, dibutyltin diacetate, and dibutyltin dilaurate catalysts (p. 12 lines 5-7).

Response to Arguments

12. In response to the applicant's arguments that the specification shows support for the amendment, it is acknowledged that applicants may amend the claims based on the specification. However, the specification must show support for all amendments made. It is the examiner's position that one of ordinary skill in the art reading the present specification would not be guided to limit a cycloaliphatic component to be less than 10 mol% of the polycarbonate polyol component.

13. Regarding the applicant's arguments that Ammons does not teach using less than 10 mol% of a cycloaliphatic polyol, the rejection has been altered to include Ammons '529 as a secondary reference. Ammons '529 indicates the use of either linear or cycloaliphatic polyols in the invention. Thus, no cycloaliphatic polyols are needed to obtain the improved impact resistance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb
July 11, 2003

James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700